Crustal deformations observed after the 2004 southeast-off Kii Peninsula earthquakes of M7.1 and M7.4

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Two large earthquakes (M7.1 and M7.4) occurred in the sea region to the southeast of the Kii Peninsula on September 5, 2004. We examined crustal deformations in the Tokai and Chubu districts to see whether after-slip of these earthquakes occurred or not. Another interest was a possible effect of the earthquakes on the Tokai slow slip.

The GEONET daily coordinates of Geographical Survey Institute were used in the investigation. We made a vectorial plot of the displacements during the period from the beginning of October to the end of December 2004, from which displacements in the same period of the previous year were subtracted to exclude secular crustal movements due to plate subduction. Well correspondence is seen between the area of southward displacements in the period and that at the earthquakes. This indicates that after-slips occurred in the focal regions. However, the rate that the magnitude of the southward displacements in the Chubu district decreases with distance from the foci of the earthquakes is apparently small compared to the displacements observed at the earthquakes, suggesting that the displacements in the Chubu district in the period from October to December cannot be explained only by the after-slips in the focal regions.

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